

WHAT IS CLAIMED IS:

1. A molding system for use in producing a solidified article having a predetermined composite pattern formed of at least two kinds of viscous fluids distinct

5 from each other in color, said system comprising:

at least one discrete passage per each of said viscous fluids for separately guiding each of the viscous fluids to a unit mold for forming a single solidified article, said each of the viscous fluids

10 having been measured separately to have a predetermined amount, and

at least one discrete passage outlet per each of said viscous fluids separately guided through said at least one discrete passage,

15 each of said at least one discrete passage outlet per each of the viscous fluids being arranged in a plane facing the unit mold.

2. The molding system as claimed in claim 1 wherein

20 said discrete passage outlets are arranged in said plane so that at least one discrete passage outlet is surrounded by rest of the discrete passage outlets.

3. The molding system as claimed in claim 1 or 2

25 further comprising:

at least one uniting passage communicating with said discrete passage outlets discharging at least two

10 kinds of the viscous fluids among all of said discrete passage outlets, and

15 at least one uniting passage outlet provided at one end of said at least one uniting passage, said at least 5 one uniting passage outlet facing the unit mold.

4. The molding system as claimed in claim 3 wherein said at least one uniting passage has a plate having at least one orifice therein for passing the viscous 10 fluids, said plate being disposed in the middle of the uniting passage in a plane transverse to a flow direction of the viscous fluid through the uniting passage.

15 5. A method for producing a solidified article having a predetermined composite pattern formed of at least two kinds of viscous fluids distinct from each other in color, said method comprising the steps of:

20 separately measuring said at least two kinds of viscous fluids,

passing each of said separately measured viscous fluids through at least one discrete passage per each of said viscous fluids for separately guiding each of said viscous fluids,

25 discharging said viscous fluids from said at least one discrete passage per each of said viscous fluids through at least one discrete passage outlet per each

of said separately guided viscous fluids, each of said at least one discrete passage outlet per each of the viscous fluids being arranged in a plane facing the unit mold, and

5 receiving and solidifying all kinds of said discharged viscous fluids in a unit mold to form a solidified article having a predetermined composite pattern.

10 6. The method as claimed in claim 5 wherein said discrete passage outlets are arranged in said plane so that at least one discrete passage outlet is surrounded by rest of the discrete passage outlets, and wherein a timing for discharging said viscous 15 fluids through said discrete passage outlets are controlled so that discharge of the viscous fluid through said at least one surrounded discrete passage outlet starts later and ends earlier than discharge of the viscous fluids through said rest of the discrete 20 passage outlets.

7. A method for producing a solidified article having a predetermined composite pattern formed of at least two kinds of viscous fluids distinct from each 25 other in color, said method comprising the steps of: separately measuring said at least two kinds of viscous fluids,

passing each of said separately measured viscous fluids through at least one discrete passage per each of said viscous fluids for separately guiding each of said viscous fluids,

5 discharging said viscous fluids from said at least one discrete passage per each of said viscous fluids through at least one discrete passage outlet per each of said separately guided viscous fluids, each of said at least one discrete passage outlet per each of the
10 viscous fluids being arranged in a plane,

 passing at least two kinds of said viscous fluids of all the discharged viscous fluids through at least one uniting passage,

15 discharging said at least two kinds of said viscous fluids from the uniting passage through at least one uniting passage outlet provided at one end of said at least one uniting passage, and

20 receiving and solidifying all kinds of said viscous fluids including said viscous fluids discharged through said at least one uniting passage outlet in a unit mold to form a solidified article having a predetermined composite pattern.

8. The method as claimed in claim 7 wherein said
25 discrete passage outlets are arranged in said plane so that at least one discrete passage outlet is surrounded by rest of the discrete passage outlets,

and wherein a timing for discharging said viscous fluids through said discrete passage outlets are controlled so that discharge of the viscous fluid through said at least one surrounded discrete passage outlet starts later and ends earlier than discharge of the viscous fluids through said rest of the discrete passage outlets.

9. The method as claimed in claim 8 wherein the viscous fluid discharged through said at least one discrete passage outlet is passed through at least one second discrete passage in stead of said uniting passage, discharged from said second discrete passage through at least one second discrete passage outlet provided at one end of said at least one second discrete passage, and received and solidified in said unit mold to form the solidified article together with the rest of the viscous fluids.

10. The method as claimed in claim 7, wherein a plate is disposed in the middle of the uniting passage in a plane transverse to a flow direction of the viscous fluid through the uniting passage, said plate having at least one orifice therein for passing the viscous fluids.

11. An apparatus for producing solidified articles

having a predetermined composite pattern formed of at least two kinds of viscous fluids distinct from each other in color, said apparatus comprising:

5 a first nozzle having at least one discrete passage per each of said viscous fluids for separately guiding each of the viscous fluids, and at least one discrete passage outlet per each of said viscous fluids separately guided through said at least one discrete passage, each of said at least one discrete passage 10 outlet per each of said viscous fluid being arranged in a plane,

means for supplying said at least two kinds of viscous fluids to said at least one discrete passage per each of said viscous fluids in said first nozzle,

15 a second nozzle having at least one uniting passage communicating with said discrete passage outlets discharging at least two kinds of the viscous fluids among all of said discrete passage outlets in the first nozzle, and at least one uniting passage outlet for 20 discharging said viscous fluids guided through said at least one uniting passage, and

a conveyer for receiving and transferring all kinds of said viscous fluids discharged through said at least one uniting passage outlet in the second nozzle.

25

12. The apparatus as claimed in claim 11 wherein said discrete passage outlets of the first nozzle are

arranged in said plane so that at least one discrete passage outlet is surrounded by rest of the discrete passage outlets.

5 13. The apparatus as claimed in claim 12 wherein said second nozzle further has at least one second discrete passage communicating with said at least one discrete passage outlet of said first nozzle, and at least one second discrete passage outlet for discharging said
10 viscous fluids guided through said at least one second discrete passage.

14. The apparatus as claimed in claim 13 further comprising a timing means for controlling timing for
15 discharging the viscous fluids through said at least one uniting passage outlet and said at least one second discrete passage outlet of the second nozzle so that discharge of the viscous fluid through said at least one second discrete passage outlet starts later and
20 ends earlier than discharge of the viscous fluids through said at least one uniting passage outlet.

15. The apparatus as claimed in claim 11 further comprising cutting means for cutting said all kinds
25 of said viscous fluids received on the conveyer into pieces.

16. The apparatus as claimed in claim 11 wherein said at least one uniting passage has a plate having at least one orifice therein for passing the viscous fluids, said plate being disposed in the middle of the uniting 5 passage in a plane transverse to a flow direction of the viscous fluid through the uniting passage.

17. The apparatus as claimed in claim 11 further comprising rotatably driving means for rotating said 10 first nozzle and/or said second nozzle around an axis perpendicular to said plane wherein discrete passage outlets of the first nozzle are arranged.

18. A method for producing solidified articles having a predetermined composite pattern formed of at 15 least two kinds of viscous fluids distinct from each other in color, said method comprising the steps of: supplying said at least two kinds of viscous fluids separately in a predetermined ratio,
20 passing each of said separately supplied viscous fluids through at least one discrete passage per each of said viscous fluids for separately guiding each of said viscous fluids,
25 discharging said viscous fluids from said at least one discrete passage per each of said viscous fluids through at least one discrete passage outlet per each of said separately guided viscous fluids, each of said

at least one discrete passage outlet per each of the viscous fluids being arranged in a plane,

passing at least two kinds of said viscous fluids of all the discharged viscous fluids through at least 5 one uniting passage,

discharging said at least two kinds of said viscous fluids from said at least one uniting passage through at least one uniting passage outlet provided at one end of said at least one uniting passage,

10 receiving and transferring all kinds of said viscous fluids including said viscous fluids discharged through said at least one uniting passage outlet on a conveyer to form solidified articles.

15 19. The method as claimed in claim 18 wherein said discrete passage outlets of the first nozzle are arranged in said plane so that at least one discrete passage outlet is surrounded by rest of the discrete passage outlets of the first nozzle.

20

20. The method as claimed in claim 19 wherein the viscous fluid discharged through said at least one discrete passage outlet is passed through at least one second discrete passage instead of said uniting 25 passage, discharged from said second discrete passage through at least one second discrete passage outlet provided at one end of said at least one second discrete

passage, and received and transferred on the conveyer to form the solidified articles together with the rest of the viscous fluids.

5 21. The method as claimed in any one of claims 18 to 20 wherein said steps of supplying said at least two kinds of viscous fluids separately; passing each of said separately supplied viscous fluids; discharging said viscous fluids from said at least one 10 discrete passage; passing at least two kinds of said viscous fluids; and discharging said at least two kinds of said viscous fluids from said at least one uniting passage are carried out continuously to form an elongate aggregate of solidified articles.

15

22. The method as claimed in claim 21 further comprising a step of cutting said elongate aggregate of solidified articles received on the conveyer into pieces.

20

23. The method as claimed in any one of claims 18 to 20 wherein said steps of supplying said at least two kinds of viscous fluids separately; passing each of said separately supplied viscous fluids; 25 discharging said viscous fluids from said at least one discrete passage; passing at least two kinds of said viscous fluids; and discharging said at least two kinds

of said viscous fluids from the uniting passage are carried out intermittently.

24. The method as claimed in claim 23 wherein a
5 timing for discharging the viscous fluid through said at least one uniting passage outlet and said at least one second discrete passage outlet of the second nozzle is controlled so that discharge of the viscous fluid through said at least one second discrete passage
10 outlet starts later and ends earlier than discharge of the viscous fluids through said at least one uniting passage outlet.

25. The method as claimed in claim 18 wherein a plate
15 is disposed in the middle of the uniting passage in a plane transverse to a flow direction of the viscous fluid through the uniting passage, said plate having at least one orifice therein for passing the viscous fluids.

20

26. The method as claimed in claim 18 wherein said first nozzle and/or said second nozzle are rotated around an axis perpendicular to said plane wherein discrete passage outlets of the first nozzle are
25 arranged.